The Rhode Island Growth Model

The RI Growth Model is a statistical model that measures student progress on the NECAP Math and Reading tests. The RIGM enables us to look at **growth** in addition to **proficiency** to get a fuller picture of student achievement.

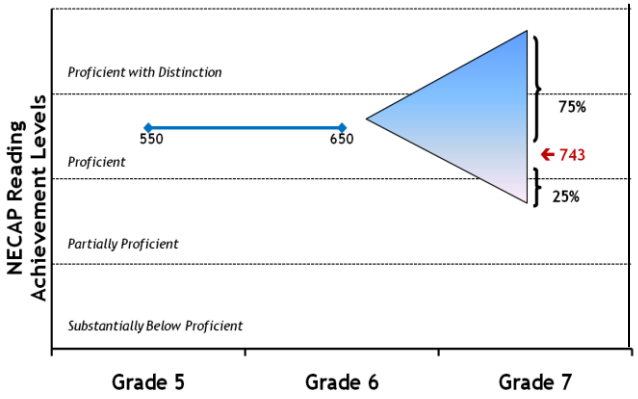
Why is it Useful?

The Rhode Island Growth Model (RIGM) provides students, parents, teachers, districts, and the state with another piece of data that contributes to a fuller, more descriptive picture of student achievement. With this information, not only can we see students' proficiency levels, we can also see how much growth they're making relative to other students who have scored similarly.

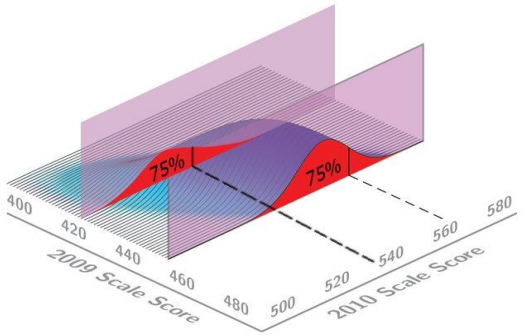
How is it Calculated?

At a minimum, two consecutive data points (e.g., a student's test scores from his/her grade 4 and grade 5 NECAP math tests) are needed for the RIGM. Each student's growth is compared to that of his or her *academic peers*. Academic peers are all students **statewide** with a similar NECAP score history, regardless of student demographic data or program information (e.g., race/ethnicity, SES, IEP, LEP).

The student's growth is measured as a percentile from 1-99, with higher values indicating more growth relative to academic peers. These percentiles are similar to the height and weight percentiles that physicians use explain an infant or baby's relative growth. For example, a student with a **Student Growth Percentile (SGP)** of 90 showed more growth than 90% of his or her academic peers



The triangle in the graph above indicates the range of scores on the 7th grade NECAP reading test among a group of academic peers. The example presents a student in this group who scored a 743 on the 7th grade reading test, which yields an SGP of 25 and indicates that this student scored higher than 25% of his academic peers and lower than 75% of his academic peers.



The graph above shows how two students with different NECAP scores can have the same SGP. Notice how the first student had a 2009 score of 420 and a 2010 score of 540, yielding an SGP of 75 compared to his/her academic peers whereas the second student, who scored a 450 in 2009 and 560 in 2010 also received an SGP of 75.

What are its Benefits?

Because all students' scores are compared only to their academic peers', students at every level of proficiency can demonstrate an SGP between 1-99.

This can be encouraging to students, schools, and districts who demonstrate low proficiency but high growth. It can also discourage complacency among those that consistently demonstrate high levels of proficiency but not high levels of growth.

How are SGPs Aggregated?

For a group of students in a school (or district, classroom, etc.), SGP data can be aggregated (summarized) to determine the median SGP of the school. To do so, all tested students' SGPs are arranged in order (e.g., 1-99) to determine the median SGP that is most representative of the school. This median SGP is the point at which half of the students' SGPs are above and half are below. For example, the median SGP of the school in the table below would be 25.

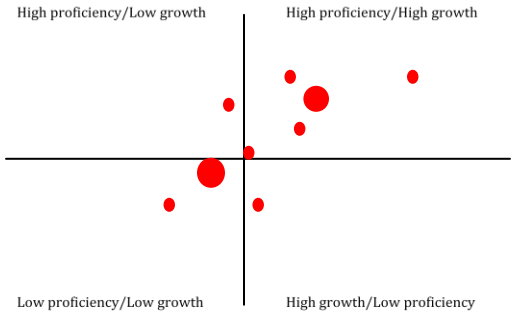
Student	SGP
Shoba	5
Andre	14
Damian	25
Lisa	51
Ana	60

The RIGM uses the median instead of the mean because it is a more appropriate measure when using percentiles. The mean is highly influenced by very high and very low scores, making the median a better indicator of the true center of the data.

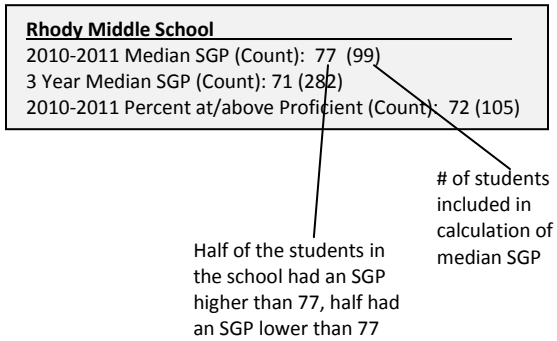
How are Results Presented?

The RIGM will enable us to produce "bubble charts" to indicate proficiency and growth, which can be plotted on the same graph using a scatter plot.

In the graph below, each bubble represents a grouping of students, such as a district or a school. Note that the size of each bubble indicates the size of the school/district. The bubbles that are higher up demonstrate greater *proficiency* whereas those further to the right demonstrate greater *growth*.



When looking at the pdf, you will be able to scroll over each bubble to see the following data:



For more information, visit:
http://www.cde.state.co.us/research/GrowthModel.htm
http://www.doe.mass.edu/mcas/growth/

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A New Way of Looking at

Student Achievement